

EXHIBIT 16

PUBLIC REDACTED VERSION

ATTORNEYS' EYES ONLY

Page 1

1 UNITED STATES DISTRICT COURT
 2 NORTHERN DISTRICT OF CALIFORNIA
 3 SAN FRANCISCO DIVISION

4 IN RE GOOGLE PLAY STORE : Case No.
 5 ANTITRUST LITIGATION : 3:21-md-02981-JD

6 This Document Relates To:

7 State of Utah et al. v.

8 Google LLC et al.

9 Case No. 3:21-cv-05227-JD

10 Match Group, LLC et al. v.

11 Google LLC et al.

12 Case No. 3:22-cv-02746-JD

13 Epic Games Inc. v. Google

14 LLC et al.

15 Case No. 3:20-cv-05671-JD

16 In Re Google Play

17 Consumer Antitrust

18 Litigation

19 Case No. 3:20-cv-05761-JD

20 ** ATTORNEYS' EYES ONLY **

21 TUESDAY, APRIL 4, 2023

22 Video Recorded and Remote Zoom

23 Deposition of HAL J. SINGER, Ph.D., taken
 24 pursuant to Notice, at the law offices of
 25 Munger, Tolles & Olson LLP, 601 Massachusetts
 Avenue NW, Washington, DC, commencing at
 approximately 9:11 a.m., on the above date,
 before Rose A. Tamburri, RPR, CM, CCR, CRR,
 USCRA Speed and Accuracy Champion and Notary
 Public.

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1 APPEARANCES, CONTINUED:

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7 Representing the Defendants
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9 ALSO PRESENT:

10 BRYAN BLOOM, ESQUIRE
11 Attorney General's Antitrust
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13 GLEN FORTNER, Videographer

(Via Remote Zoom)

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18 STEPHEN MYERS
19 DR. KEVIN CAVES
20
21
22
23
24
25

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I N D E X

TESTIMONY OF: HAL J. SINGER, Ph.D.

By Mr. Raphael.....7, 423

By Ms. Giulianelli.....423

E X H I B I T S

EXHIBIT NO.	DESCRIPTION	PAGE NO.
DX-1112	Merits Reply Report of Hal J. Singer, Ph.D.	6
DX-1113	University of Utah Campus Directory	20
DX-1114	Logit Chapter from Kenneth Train Textbook	92
DX-1115	Apple Slide Deck - Bates Nos. DX-4526.001 - 138	253
DX-1116	Daniel L. McFadden Nobel Prize Lecture, December 8, 2000	410

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DEPOSITION SUPPORT INDEX

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4

DIRECTION TO WITNESS NOT TO ANSWER

5

Page Line

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None

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8

REQUEST FOR PRODUCTION OF DOCUMENTS

9

Page Line Description

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None

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STIPULATIONS

16

Page Line

17

None

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19

PREVIOUSLY MARKED EXHIBITS REFERRED TO

20

EXHIBIT NUMBER

PAGE REFERENCED

21

DX-1059

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1 (Whereupon, a document was marked,
2 for identification purposes, as Exhibit
3 DX-1112.)

4 THE VIDEOGRAPHER: Good morning.

5 We are going on the record at 9:11
6 on March 4th, 2023. {Sic}

7 Please note that the microphones
8 are sensitive and may pick up whispering and
9 private conversations. Please mute your
10 phones at this time.

11 Audio and video recording will
12 continue to take place unless all parties
13 agree to go off the record.

14 This is Media Unit 1 of the video
15 recorded deposition of Hal Singer, in the
16 matter of In Re: Google Play Store Antitrust
17 Litigation, filed in the United States
18 District Court, Northern District of
19 California.

20 The location of the deposition is
21 Munger Tolles.

22 My name is Glen Fortner
23 representing Veritext and I'm the
24 videographer. The court reporter is Rose
25 Tamburri from the firm Veritext.

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1 I'm not related to any party in
2 this action, nor am I financially interested
3 in the outcome.

4 Counsel will be noted on the
5 stenographic record.

6 Will the court reporter please
7 swear in the witness and then counsel may
8 proceed.

9 - - -

10 ...HAL J. SINGER, Ph.D., after
11 having been duly sworn and/or affirmed, was
12 examined and testified as follows...

13 - - -

14 EXAMINATION

15 - - -

16 BY MR. RAPHAEL:

17 Q. Good morning.

18 A. Good morning.

19 Q. Can you state your name for the
20 record.

21 A. Sure. Hal Jason Singer.

22 Q. And, Dr. Singer, you've been deposed
23 a number of times; is that right?

24 A. Yes.

25 Q. How many, would you estimate?

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1 and the resulting effect on damages was even
2 smaller.

3 Q. And you don't recall why you made
4 those changes?

5 A. I have a -- I have a hazy
6 recollection that it had something to do with
7 new and better data than what we had used at
8 the class certification stage.

9 Q. Okay.

10 Now, one of your damage models
11 that measures overcharges assumes that there
12 are separate app distribution and in-app
13 after-markets; is that right?

14 A. Did you say one? I'm sorry.

15 Q. Yeah, one of your damage models, or
16 maybe some of -- let me ask a better question.

17 Some of your damage models assume
18 that there are separate app distribution and
19 in-app after-markets?

20 A. Yeah. I would say, just to be clear,
21 almost all, right, so you gotta flip it around
22 and say almost all.

23 There -- there are a few --
24 there's maybe one or two that I offer in the
25 alternative, if the fact-finder determines

1 that it's --it's one market that I could
2 offer -- I could at least speak to damages in
3 that scenario.

4 But the -- but the base case, the
5 baseline for almost all the models is two
6 separate markets.

7 Q. But you do have one iteration of your
8 damages model in which you have assumed that
9 there is one market for both app downloads, as
10 well as transactions after the app download;
11 right?

12 A. I mean, if I could just put it in my
13 favorite term --

14 Q. Sure.

15 A. -- in-app distribution and in-app --
16 in-app services, yes.

17 Q. Okay. And in the -- let me start
18 again.

19 In the damage model that assumes
20 that there's one market for app distribution
21 and in-app services, does that assume that
22 there's no unlawful tying?

23 A. Well, for one case, I -- the way that
24 I motivate it is I say assuming the
25 fact-finder concludes there is one market. So

1 I think that if there is one market, you can't
2 have tying.

3 But in another case where I'm
4 solving for the -- the subsidy, I say that
5 that one would be consistent with two markets.
6 The only reason why I say for one subsidy is
7 the idea that it would be strange for Google,
8 or whoever is -- yeah, Google to restrict the
9 subsidy to only, say, work for initial
10 downloads and not allow them to use it for
11 subsequent ancillary purchases.

12 Q. Right.

13 But on the -- on the damages model
14 that estimates overcharges in a world where
15 there is one market for app distribution and
16 in-app services, in that scenario, you're
17 assuming that there's no unlawful tying?

18 A. I think that's fair, that in the --
19 or I think I call it the single take rate
20 model.

21 Q. Right.

22 A. But I think that in that -- in that
23 model, I tell the reader that this is done in
24 the contingency that the fact-finder
25 determines there is a single market. And so

1 in that case, you couldn't have a tie if
2 there's a single market.

3 Q. Understood.

4 With respect to these overcharge
5 models we've been discussing, you're trying to
6 measure whether consumers paid more for app
7 subscriptions or in-app purchases as a result
8 of Google's anti-competitive conduct?

9 A. Let me -- let me just hear it back; I
10 might be getting -- I might be getting tired.
11 But let me just hear it back. I'm sorry.

12 Q. Sure.

13 With respect to overcharges, what
14 you're trying to measure is whether consumers
15 paid more for app subscriptions or in-app
16 purchases as a result of Google's challenged
17 conduct?

18 A. I think ultimately, we are trying to
19 get overcharges from the consumers'
20 perspective, but I just want to make sure that
21 your -- your question allowed for the
22 possibility that the overcharge can -- can
23 work through two separate mechanisms; one is
24 through an inflated take rate that gets baked
25 into the inflated app prices. But -- but

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1 Q. That's what I wanted to ask you.

2 You don't have to do a formal
3 SSNIP test to correctly define a relevant
4 market?

5 A. Correct. In many cases, you can
6 apply what are called the Brown Shoe factors
7 which -- which could get a Court to -- to
8 agree to the existence of a market without any
9 recourse to the HMT. You probably enjoy me
10 saying that better than Hypothetical
11 Monopolist Test, but that's the last time,
12 HMT.

13 Q. Can you explain to the jury what the
14 Android App distribution market is?

15 A. Sure. It is a market in which a
16 platform brings together app developers and
17 users so that they can discover types of apps
18 that they enjoy using and can engage in an
19 exchange of trade to where they're both better
20 off.

21 Q. Who are the buyers and who are the
22 sellers in the Android App distribution
23 market?

24 A. Well, that's a bit of a -- oh, yes,
25 who are the buyers and the sellers. It's a

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1 bit of a trick question or tricky question
2 because it's a two-sided market. So you could
3 think about both developers and users as being
4 the consumers on each side of the platform.

5 But if you're asking who the
6 supplier is in that market, I mean, Google
7 Play Store is the obvious one, right, but it
8 could be any Android App distribution
9 provider, as I've defined that market.

10 Q. Are in-app purchases or subscriptions
11 part of the Android App distribution market?

12 A. No.

13 Q. What price do consumers pay in the
14 Android App distribution market?

15 A. The price for access is effectively
16 free of charge if you ignore that very
17 minuscule subsidy that Google is offering.
18 But if you take the subsidy into
19 consideration, you can think of that as a
20 negative price of accessing the platform.

21 Q. And that's the price for the user
22 side; right?

23 A. Correct.

24 Q. And the price on the developer side
25 for the app distribution market are the

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1 first day of the Android market. It's
2 conceivable that Android market predates the
3 MADA, but -- but -- but I think that it --
4 this was all happening around the same time.

5 Q. Do you know whether Google was
6 offering carriers [REDACTED] [REDACTED] [REDACTED]
7 [REDACTED] [REDACTED] [REDACTED] at any
8 time after it launched the MADAs?

9 A. Oh, yes, they did that for several
10 years. I think that they didn't take the rev
11 share with carriers down to -- to zero until
12 about 2012. And what happened then is that
13 Google determined that the carriers no longer
14 represented a threat to Google at that point.

15 Q. Right.

16 So that --

17 A. But -- but that is consistent with
18 them also having market power and choose --
19 and -- and imposing a super competitive take
20 rate on developers, right?

21 Q. In paragraph 26 here, though, you
22 said, "In earlier years, before Google
23 acquired monopoly power, they retained, at
24 most, [REDACTED] [REDACTED] [REDACTED] [REDACTED]."

25 So in the paragraph 26 here,

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1 change in your hypothetical, was whether
2 Google would withdraw access to the APIs if
3 the OEM refused to take the bundle of GMS,
4 including Play.

5 Q. Are you aware of any promise by
6 Google that it would always make all -- all of
7 its public APIs available publicly?

8 A. I'm not aware of such a promise.

9 Q. Are you aware of any promise that
10 Google made that it would never profit from
11 the Google Play Store?

12 A. I -- I'm not aware of a promise. I'm
13 aware of record evidence that suggests that it
14 wasn't Google's original intention to make
15 money on the Play Store, but I don't know if
16 that was broadcast to -- to developers that
17 way as a promise.

18 Q. And are you aware of any promise that
19 Google made to the cellular carriers that it
20 would always offer them [REDACTED] of its
21 revenue from the Play Store?

22 A. No. I actually think that that --
23 that my reading of the record evidence, that
24 came as a surprise to the carriers.

25 Q. Are you offering the opinion that